Application No. 09/543,207
Docket No. Y0999-470
Amendment dated August 25, 2003
Reply to Office Action of March 25, 2003

REMARKS

In the Office Action, the Examiner reviewed claims 1-33 of the above-identified US Patent Application, with the result that all of the claims were rejected under 35 USC §103 in view of U.S. Patent No. 6,006,264 to Colby et al. (Colby) in view of U.S. Patent No. 6,502,131 to Vaid et al (Vaid), the latter of which was inadvertently identified as Patent No. 6,520,131 in the Office Action. In response, Applicants respectfully traverse this rejection and request reconsideration in view of the following comments.

With reference to representative independent claim 1, Applicants' invention is a system (and method) for controlling and managing Internet server farm traffic through a plurality of servers [16], the server farm traffic arriving at a server farm as inbound traffic [14] organized by customer (i) and traffic type (j) and leaving the server farm as outbound traffic [18], the system being operable to control and manage the outbound traffic [18] in accordance with outbound bandwidth usage-based service level agreements of form $(Bmin, Bmax)$. The system requires:

means [20,24] for collecting the admitted rate (Ra) of inbound traffic [14] for each customer traffic type (i,j);

means [20,24] for collecting the rejected rate (Rr) of inbound traffic for each customer traffic type (i,j);

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means [20,28] for collecting the outbound traffic (B) [18] for each customer

traffic type (i,j);

means [20] for computing an expected bandwidth usage (b) per TCP

connection request for each customer traffic type (i,j);

means [20] for computing the target rate (Rt) for each customer traffic type

(i,j) that supports the outbound bandwidth usage-based service level agreements of form

(Bmin,Bmax);

limiter means [22] for admitting inbound traffic [14] based on the target rate

(Rt) and for tracking the volume of admitted inbound traffic (Ra) and the volume of

rejected inbound traffic (Rr) for each customer traffic type (i,j);

means [20] for relaying the target rates (Rt) for inbound traffic [14] to the

limiter means [22]; and

means [12] for dispatching the admitted inbound traffic (Ra) to the servers

[16].

Under the §103 rejection, the Examiner explained that Colby discloses

Applicants' invention recited in the independent claims except for Applicants' means

(20) for computing the expected bandwidth usage (b), means (20) for computing the

target rate (Rt), limiter means (22), relaying means (20), and dispatching means (12).

The Examiner concluded that it would have been obvious to a person having ordinary

skill in the art at the time the invention was made to modify Colby to incorporate these

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missing components in view of Vaid. Applicants respectfully disagree.

As noted above, Applicants teach and claim a system and method of limiting outbound-traffic flow through limiting inbound-traffic flow. To achieve this aspect claimed by Applicants, Applicants' system and method are claimed to include means (20) for computing an expected bandwidth usage (b), means (20) for computing a target rate (Rt), and limiter means (22) for admitting inbound traffic [14] based on the target rate (Rt). As such, the amount of traffic an inbound request will generate is estimated (with the computing means 20), and then used to limit the inbound request stream.

The Examiner acknowledged that primary reference Colby lacked any teachings for Applicants' claimed computing means (20) and limiter means (22). Applicants believe that Vaid also lacks any teachings that would suggest or motivate one skilled in the art to modify Colby to include these additional steps/components. Instead, Vaid describes a system that monitors traffic classes and performs basic outbound bandwidth control through the discarding of outbound data that is above some fixed maximum, and does not teach or suggest limiting inbound traffic to control the outbound bandwidth based on an estimate, as is claimed by Applicants. Such a fundamental difference in the teachings of Vaid and Applicants prevents one skilled in the art from relying on Vaid to modify Colby in such a manner that would result in Applicants' claimed invention.

In addition to the above, another notable issue is that Vaid's method requires the full processing of incoming requests. Since the output from these requests is

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discarded, the request source must request a retransmission, placing even more load on

the processing cluster. As the cluster becomes more overloaded, more output will be

discarded causing even more retransmission requests to be generated. Such a result is a

problem not addressed or even recognized by Vaid, but is solved by Applicants' claimed

method in which incoming requests are discarded before they have been processed.

Because Applicants' claimed method discards incoming requests, packets that are part

of a currently accepted request are not discarded, thereby reducing the load on the

processing nodes and limiting retransmissions, a benefit not possible or suggested by

Vaid.

For the above reasons, Applicants believe that the combination of Colby and

Vaid do not support a rejection of the claims under 35 USC §103(a).

Applicants wish to provide the following additional comments in response to

arguments set forth in the Office Action as supporting certain aspects of the rejection.

In paragraph 2 of the Office Action, the Examiner stated that Vaid discusses

the monitoring and control of inbound and outbound flows (citing column 13, lines 59-

67). However, Applicants believe that Vaid does not discuss or suggest the use of

expected (i.e., estimated or predicted) outbound flow from a given request to regulate

inbound flow, as required by Applicants' independent claims.

In paragraphs 3 and 4 of the Office Action, the Examiner stated that Vaid

discusses associating an inbound traffic monitor with a dispatching means (citing column

20 lines 58-65 & column 13, lines 59-67). However, as explained above, Vaid's

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method does not allocate bandwidth-in based on bandwidth-out goals, as required by Applicants' claims. Furthermore, Applicants' claims do not require associating monitored traffic to a dispatcher, for which Vaid was cited, but instead associate the limiter (22) and an inbound traffic scheduler device (20) to a dispatcher (12).

In paragraph 6 of the Office Action, the Examiner stated that Vaid discusses an inbound traffic limiter (citing column 7, lines 12-23). However, Applicants believe that the cited passage does not relate to an _inbound_ traffic limiter, but instead is directed to the use of an _outbound_ traffic limiter.

In paragraph 8 of the Office Action, the Examiner stated that Vaid discusses an inbound traffic dispatching network operable to compute target rates (Rt), citing column 3, lines 62-67, and Column 4. lines 1-14. However, Vaid is limiting _outbound_ traffic based on _fixed_ maximums, instead of limiting _inbound_ traffic based on _expected_ values (target rates Rt) as is claimed by Applicants.

For all of the above reasons, Applicants respectfully request withdrawal of the rejection to the claims under 35 USC §103(a).
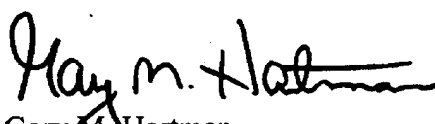
Closing

In summary, Applicants believe that the claims define patentable novelty over all the references, alone or in combination, of record. It is therefore respectfully requested that this patent application be given favorable reconsideration.

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Should the Examiner have any questions with respect to any matter now of

record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,

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